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MAGAZINE



Vol. 16
No. 2

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R.N. Diving Magazine

Vol. 16

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Editor's Notes

SORRY this edition is again late but if no one sends in articles there just is nothing to print.

I thank all who wrote about the last Magazine, it seems as though it went down well.

Readers still serving ask me to print more about Teams. Well I don't know what's going on so please keep the Letters coming in.

A line or two on the back page of an old 288, will do.

All materials for the Magazine is welcome.

I am sorry to see *Nepton* has been discontinued, I hope the Home Air Command Sub-Aqua Club will make some use of the R.N. DIVING MAGAZINE.

FRONT COVER Western Fleet C.D.T. arriving at Athens in a Hercules, accompanied by their vehicles.
See Go Western.

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Go Western

THE Western Fleet Clearance Diving Team have not been standing around since we last wrote. We have been to the places in Europe where only the best people go. We have completed several circumnavigations of Scotland and have reacquainted ourselves with the geography of Portland Harbour. There's hardly a pub on the M.1 or M.6 which we have not visited and there are of course the visits to various 'aunts' who just happen to live on route! In fact there is a certain 'aunt' in Manchester who has a pair of binoculars trained on the M.6 waiting for our arrival. We have recently had another Long Wheelbase Landrover added to the transport fleet but rumours that M.O.D. (N) is supplying the Boss with an 'E' Type should be strongly denied. However enough of this lighthearted prattle, on to the serious stuff—what have we been doing?

Immediately after the summer leave we flew to Athens in a *Hercules* accompanied by all our vehicles and stores. The aircraft was a trifle cramped but it was worth it for the sunshine we hoped to enjoy. It was raining on arrival in Athens! For the next two weeks we took part in Exercise Medsweepex '69 and worked with Greek and U.S. Navy diving teams. Excellent co-operation was enjoyed though at times they wondered at our sense of humour. We returned in an R.A.F. *Belfast* which took the lorry, landrover with trailer and 14 of us in a fair degree of comfort. The pleasures of Athens and the bikini strewn beach at Glyfada had obviously taken their toll judging by the snores which shook the aircraft during the flight.

Two days after our return we were off to Holland to take part in Exercise Grey Sextet held at Den Helder. This time we travelled by road via the Harwich/Hook of Holland ferry. The exercise was primarily concerned with diving and involved seven diving teams: U.K., Danish, Dutch, French, German Norwegian and United States. We had to clear Den Helder of mines. Diving was a complete change from Greece; zero visibility, cold and the bottom was soft mud to a depth of 10 feet. However with use of probes we found more mines than anyone else, which reflects on our diving training? The return trip was the reverse of the journey out.

After five days in *Vernon* we were off up North for 250 feet dips in Loch Ewe. I know the weather in Scotland in October is normally bad but that which we experienced was quite appalling. We eventually had to shift our attempts at deep dips to Loch Long and Loch Fyne where it was a bit more sheltered.

Needless to say no sooner had we arrived than a gale blew straight up Loch Long making it too rough to dive. However after frenzied throwing of bones and praying to the Gods the weather relented, the wind dropped and it steadily grew colder and colder. Nevertheless we managed to do all the dives though the last day at Inverary we all got covered by snow and nearly trapped in the vehicles by a blizzard!

November 12th saw the W.F.C.D.T. in Gibraltar having flown out there by B.E.A. and with the help of their air Stewardesses. We carried out an Operation Awkward on the Western Fleet on the night of the 13th. We returned from Gib. four days later with our pockets considerably lighter after visits to the Casino.

The Team had a weeks rest in *Vernon* before heading North again, this time to assist the Scotland Team at Wick. We spent the next ten days clearing explosives from a war-time wreck at the entrance to Wick harbour. Of course Scottish weather came up to expectations with howling gales, raging blizzards and thick ice over everything. However relations with the locals improved each day!

The final two weeks before Christmas leave have been spent at Portland and visiting Dunlops in Manchester. So you see we move around a great deal. This year promises to be even busier than last with visits to Italy, South of France and we hope Norway. If you like plenty of variety with your diving and do not mind being away from home a good deal, with visits to foreign countries as well, then put in for the Team. There is no doubt there is no better in spite of comments from our Plymouth brethren on T.V. recently!

As a finale I give you a quick glance at the present Team members, December 1969.

Lt. R. J. Riches. The Boss, who is rapidly losing what remains of his hair.

Chief 'Dutchy' Holland. The darling of the Athens social scene and our P.R. man.

P.O. Neil Primrose. Who runs the Team stores and a new V.W. 1600 T.L.

P.O. Terry Settle. The present holder of the fastest time—Portsmouth to Inverness in the 3-tonner.

L.S. Ian Duxbury. A native of the highlands and authority on whisky.

L.S. Ginger Markham. Co-pilot for Terry above.

L.S. Jock Spencer. Another Scotsman, happiest in the rain.

L.S. Woolly II, Wooldridge. Inseperable from Woolly I.

A.B. Woolly, I Woolnough. Chief's great friend.
A.B. 'Stingers' Imray. Always the height of sartorial elegance.

A.B. John Salisbury. The smooth and debonair man about town.

A.B. Jan Hadley. Has he cracked yet?

A.B. Chris Crask. He started off so quiet—now meet him if you dare.

L.M.E. 'Mo' Morton. The Chief's oil-filled sight-setter.

Good luck to all for 1970 and especially if you meet the above.
FOUR FINS.

The Giant Sea Sock

by WADE DOAK

ABLE Seaman Kane and I were swimming along a cliff face at 50 feet. I was acting as tourist guide to the Poor Knights' scenery. I pointed out a large Porae sitting in a cup sponge. The English sailor gave an excited start and to my surprise, chased it down a steep gulley. Just as I started after him, a weired shape loomed just ahead on the edge of vision: a huge white cylindrical form. I had no time to stop and examine it. My diving mate was heading deeper. I grabbed his fin at 110 feet. He gave a startled shudder. The Porae was 50 feet further down. Signalling 'ascend', I urged my partner up the gulley to where I knew something fantastic awaited us.

Soon, silhouetted against the surface, it came into view. Kane moved faster now. Wafting gently on the swells at 50 feet, held out from the cliff face by back pressure, was a giant salp. Ghostly white, almost four times as long as my body, and as round, this huge mass of gelatinous tissue looked too frail to withstand touch. Fish were nibbling holes in it and Kane saw a Leather jacket right inside the cylinder, gorging itself on the jelly. When I grabbed one end I was surprised to find the exterior felt rough and fibrous. Transparent prickles were embedded in the tissues to strengthen them. The body wall was half an inch thick, and the interior, as smooth as glass. Signalling Kane, we prepared to swim the huge tube up to the *Matira* tethered nearby.

As the surface light approached the salp was transformed into a delicate lolly pink, dotted with billions of scarlet nuclei.

The team of British Navy divers on the *Matira* were startled out of their wits when 'Sugar' Kane and I swam up with the huge undulating sea monster. We had already boated a 15 pound packhorse cray, to their delight. Now cameras clicked and more film whirred as we manoeuvred it into position. Then Peter Doherty of the Whangarei Club swapped

places with me so I could snap some underwater shots of it.

Samples of its tissues were taken for preservation and scientific examination.

The Salp is a compound ascidian related to the familiar sea squirt of sea shore or jetty piling. In this case millions of tiny 'tunicate' like animals have combined to produce a huge deep sea diving vehicle for life support purposes. The ascidian occupies an amazing place in the evolutionary chain. It is much more advanced than the invertebrate packhorse cray, having the beginning of a backbone. In fact, the ascidian belongs to the same chordate phylum as Man himself. However, the ascidian has foresaken locomotion. For it, all life offers is a constant flow of nutrient water.

Which reminds me of the city-dweller of tomorrow, legless before his battery of T.V. consoles, his every need supplied by electronics. The octopus is a mere mollusc, like the pipi, but a thousand times more intelligent than an ascidian. Whatever rung of the evolutionary scale an animal occupies, there is always the possibility of his finding a comfy backwater to stagnate in. And so our brother the deep ocean salp.

A few days later, diving friends Roger Grace and Tony Ayling were diving in the same area when they sighted a monstrous salp. 30 feet long and 4 feet in diameter at one end, it tapered toward the other. From the wide end a 30 foot long filamentous tail trailed behind. Nearby was another salp with a body length of 40 feet.

There does not seem to be any real limit to the size such a creature could attain.

Footnote: 'Sugar' Kane and the British Navy divers were ecstatic about New Zealand skin-diving "I've dived in Kenya, the Med., South Africa, Hong Kong and the U.K., I've never seen anything half as good as the Poor Knights", said 'Sugar'.

Diving Display—

NAVY DAYS 1969

THE traditional display at Portsmouth Navy Days during August Bank Holiday weekend, and it turned out to be more fun for those who took part than was anticipated. We certainly used up most of *Vernon's* allowances of Thunderflashes and smoke for this year.

The display took place in No. 1 Basin, which meant that very little of it happened underwater as people would not have seen it. Fast pick-ups, followed by helicopter jumps, with some home-made 'Historical' gear and 'Standard' demonstrations was how the display started. A short demonstration of diving equipment came next, while those not involved reorganised. In the final ten minutes of the display we had Chitty Chitty Bang Bang get waterborne and engage in a grand battle with the 'Wicked

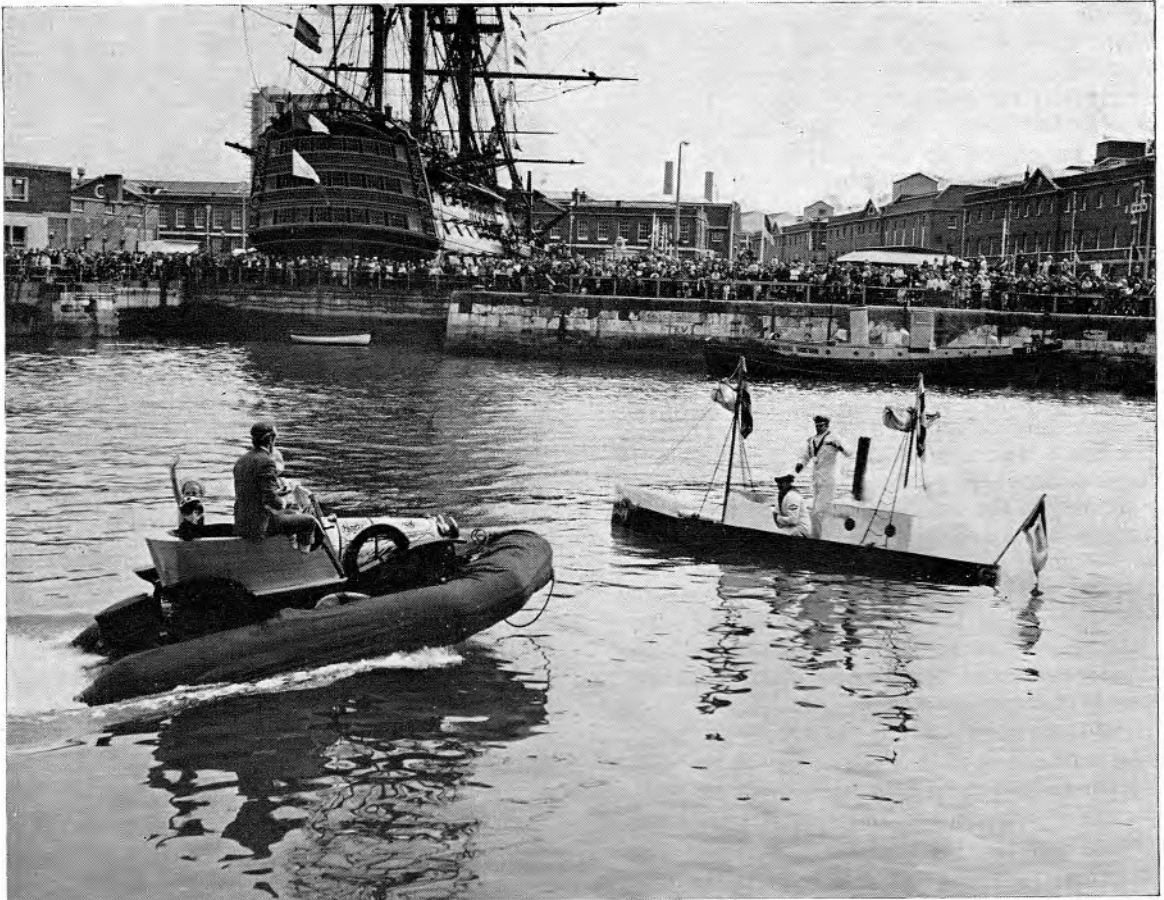
Baron's Yacht'. Amid smoke and thunderous bangs the yacht finally sank, but our finale was to dive after it and drive it to the surface under the power of its own air tanks.

Whether the crowd enjoyed it or not it kept us happily amused.

Those taking part were:

Lt. A. T. J. Padwick
P.O. Shennan
L.S. O'Meara
L.S. Spencer
L.S.S. Mackenzie
L.S. Shirley

L.S. Evenden
A.B. Crask
A.B. West
L.S. Jamieson
P.O. France
P.O. Ayre
and the Diving Guard of both watches.



New premises for Admiralty Experimental Diving Unit

THE Controller of the Navy, Admiral Sir Horace Law, K.C.B., O.B.E., D.S.O., opened new accommodation for the Admiralty Experimental Diving Unit in H.M.S. *Vernon*. The unit started in 1946, to support the Royal Navy's Clearance Diving Branch then developing, and has occupied a variety of temporary accommodation. The new 'Permanent Home' reflects the importance attached to modern diving, especially deep diving, by the Ministry of Defence and the Government.

The accommodation comprises offices, laboratories, store rooms, a workshop, compass room, drawing office, accommodation for the Experimental Diving team and associated medical inspection rooms.

The Admiralty Experimental Diving Unit, an out-station of the Admiralty Underwater Weapons Establishment at Portland, is administered by the Director of A.U.W.E., Dr. Ralph Benjamin, as a Royal Naval Scientific Service Research and Development organization, specializing in design of diving equipment and the development of diving techniques for the Ministry of Defence. The Unit is directed at Portsmouth by the Officer-in-Charge, Mr. R. P. Common. Staffed by members of the R.N.S.S., the Unit works closely with the Superintendent of Diving, Commander P. A. White, M.B.E., R.N. and officers and men of the Royal Navy's Diving Branch, to produce all diving equipment required by the Navy and Royal Marine Divers, ranging from wet and dry underwater swimmers' dresses, special underwear, heated suits, and fins or boots, to breathing apparatus, compasses, depth gauges and compression chambers.

A.E.D.U. has supported the Royal Navy's Deep

Diving Research Ship H.M.S. *Reclaim* with scientists and essential equipment throughout the Deep Diving Research carried out since 1962. A series of 600 feet working dives were carried out in the Mediterranean in 1965.

Co-operative research on diving has been in progress with the U.S. Navy's Experimental Diving Unit, teams of U.S. Divers being sent over to the A.E.D.U. Deep Trials Unit where advanced diving trials have been in progress to increase the safety of deeper diving, and contribute to the generally scarce fund of knowledge on man's behaviour during prolonged exposure to elevated pressures. Extremely close co-operation is maintained in this work with the the Royal Naval Physiological Laboratories at Alverstoke, whose grounds house the Deep Trials Unit. This advanced equipment will soon be able to test men and equipment under controlled conditions to beyond 1,000 feet in water. The Unit is operated by Lt.-Cdr. W. B. Filer, M.B.E., R.N. (Retd.), who is a former diver from H.M.S. *Reclaim* and was deputy Superintendent of Diving in the A.E.D.U., until 1963. Two Royal Navy divers, Lt. C. Lafferty and P.O. J. D. Clark are taking part in the U.S. Navy Sealab trials, and A.E.D.U. is supporting these men with some British equipment which will include a heated suit for use during the deep sea dives.

Among the less glamorous but equally important and useful tasks undertaken by A.E.D.U. in recent years, has been development of power tools for divers, and assistance to the Navy in establishing techniques for changing propellers on ships whilst afloat, to avoid the necessity of dry docking. These techniques have proved of great value in recent Fleet activities in various parts of the world.

Horsea Island Sub-Aqua Open Day

AS in previous years it is intended to hold an Open Day for Aub-Aqua Clubs at Horsea Island this year. The date will be Sunday 17th May, starting at 1300. Clubs member will be able to meet Royal Navy divers, see and try their equipment, view static displays and watch various demonstrations.

Those Clubs intending to send parties are requested to inform the Editor, giving an estimate of the numbers concerned.

Unfortunately, details of the Open Day cannot be

given at the moment. An extensive rebuilding of the Diving Section on Horsea Island will be starting soon and detailed planning is impossible until we see how this is progressing. Horsea Island is no longer an island, having been joined to the mainland by a motorway roundabout complex being built to the north. By May it is hoped that visitors will be able to drive into the Island direct to the Diving Section.

Tickets and programmes will therefore be forwarded nearer the time to those Clubs concerned.

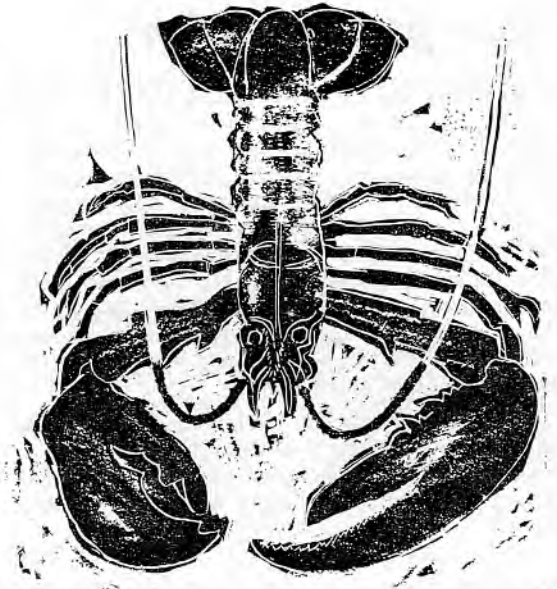
Lobster a la towse

LIKE all crustacea, lobsters should be kept alive until the time of cooking, when they are plunged into a boiling liquid. Crabs, on the other hand, must be placed in coldwater and brought to the boil or they may shed their claws.

In this recipe, the liquid used is a court-bouillon, or stock, which may be used more than once if required, and is made from the following ingredients: 4 pints of water, $\frac{1}{8}$ of a lemon, a small piece of orange peel, 2 medium sized onions, 2 cloves of garlic, a piece of fresh fennel or 1 teaspoon of anisette liqueur if available, a bay leaf, a clove, salt and pepper.

The lobster is boiled in this bouillon for 15—20 minutes or for 5 minutes per lb. if over 4lbs. Remember, the most common error in preparing lobster, and in fact most other fish, is to overcook it. When done, the lobster should be left to cool in the liquid and when removed, it should be split lengthwise down the middle. The stomach, intestines and dark central vein should be discarded but the grey-green liver and the coral-coloured roe are considered to be delicacies and can be used to decorate the finished dish if desired.

I like to serve my lobster cold with a simple salad



and a freshly made mayonnaise so that the full natural flavour can be appreciated. A delicious alternative is to eat it hot with melted butter and lemon wedges.

Thanks to Triton.

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Civilian Diving

M. R. Pemberton, M.B.E.,
c/o Sir William Halcrow & Partners,
P.O. Box 1530,
Jeddah,
Saudi Arabia.
14th August 1969.

Dear Editor,

I am sorry it is sometime since I have contributed to the R.N. DIVING MAGAZINE, but hope with this epistle to try and make up for some lost ground.

The purpose in this instance, is to try and give some knowledge of civilian diving conditions to the career diver of the R.N. about to leave the service.

I do not intend to compete with the Recruiting side of the M.O.D. (Navy Dept.), and much of what I say may successfully disqualify me from future employment myself by civilian contractors, but this is my story and I am sticking to it!

The diving trade is at present flourishing 'outside'. This may be due to several factors, amongst which must be included the ever increasing offshore work in the oil and natural gas industry, the deepening of many of the world's harbours to accommodate larger tonnage shipping, development of formerly under-developed countries, and finally the widening scope of diving techniques and equipment.

Roughly speaking the diver in civil life can expect to be employed in any of the following categories:—

Offshore Oil:

Including a wide range of drilling support operations, pipeline laying, rig tendance, offshore loading terminal operation, etc.

This job calls for some specialised knowledge, but to the qualified diver is largely a matter of common sense and ability to adjust. Normally detailed instructions will be given, but there is plenty of room for 'new eyes', and as work in this field is normally on a teamwork, rather than individual basis, most divers will find a more experienced diver willing to help over the finer points and technicalities involved.

Any knowledge of underwater welding or underwater T.V. work is an asset, and by and large it can be said that aqua-lung or surface demand will be the equipment in use. The diver, will, when working on a rig or terminal be expected to include amongst his duties general help of a marine nature when not employed on diving duties.

Civil Engineering:

This field covers a very wide range, from harbour construction and maintenance, to new development, bridge building and tunnel work, dam construction and maintenance, survey, sea-bed sampling, inland waterways, pipe laying, etc.

Speaking generally, harbour maintenance work with port authorities, etc. is unrewarding work and lacking in interest, as is inland waterways work.

Again, common sense is the main requirement, and terminology and interpretation of drawings, etc. will come naturally.

Knowledge of elementary carpentry, concrete and steel construction is of assistance. Welding, demolitions, etc. are added requirements.

Marine Biology:

This, at least to me, is of extreme interest, especially to the true diver, with an interest in all things underwater. It is, however, limited as the main call is for the Biologist first, and diver secondly, and most posts are filled by scientific staff who can dive. It is of interest though, that until recently anyway, the staff of the Seaquarium at Miami were all ex-R.N. Divers!

Pure Research:

Again, strictly limited, scientifically trained staff, doubling as divers being somewhat naturally preferred.

Conditions:

In an article of this nature it is impossible to mention salaries, employers, etc. in general terms as such a wide field is covered, however, a few 'pointers' can be given.

When working with oil companies, salaries and conditions tend to be at peak, but the importance of work, volume, etc. is only proportional. The work is often hard and arduous, and this life is not for the idle. A high standard is expected and failure to supply will mean ultimate, if not instantaneous dismissal.

Life, food, leave and equipment are usually optimum, but as the whole trade is involved in high finance, your employment will necessitate high productivity.

Openings are available world-wide, and perusal of trade directories, plus keeping an eye open in the 'Sits, Vac' in the press will tell the interested applicant where the work lies.

In the Civil Engineering field a very wide range of salaries are offered, with an equally wide range of side benefits and 'perks'. Normally, overseas, the batchelor can expect 'batchelor messing', i.e., accommodation with power, water, etc. included, often with minimal household staff, and often food, or cash allowance in lieu. Payment will usually be by salary, sometimes with additional 'diving time' and bonus, dependant solely upon output. Duty transport may also usually be expected. For the married, many jobs, but few of short durations, are 'accompanied' with suitable accommodation, though frequently 'soft' furnishings will have to be provided. (This due largely to the fact that most wives disapprove of company provided crockery, curtains, etc.!) Children up to a usual limit of three in number, and normally under 18 years of age will be provided with passage to and from point of origion to employment local.

Medical attention is normally provided free as part of the contract.

It should be remembered that contracts are legally binding, and will cover such items as salary, duties, accommodation, transportation, leave, etc., and failure to respect such conditions may result in the culprit paying his own (and families) return fare, forfeiture of leave, etc.

Generalisation:

The 'chain of command' exists in civilian life as well as service life, and is just as necessary. Taking the Civil Engineering aspect alone, the chain may be described as follows: (in order of ascent).

Diver
Chargehand Diver
Foreman Diver
Diving Superintendent
Management.

Along the line however, you may well find yourself working under direct orders from non-diving personnel, but because they are not diving folk does not mean that they are not familiar with the problems of diving, or of the output that is expected of a diver, in fact, many of this category of staff have a very wide knowledge of conditions, so don't try to bluff your way through!

Again, concerning Civil Engineering, you may work under a section foreman, who will be responsible for your duties as only part of a whole. He in turn will work under jurisdiction of a General Foreman, who is virtually the Chief Buffer of the job in hand. Technical advice may be sought from trades foremen, such as concrete, carpentry, shot blasting, dredging, etc., and they in turn, as indeed

yourself will work in co-operation with an engineer, who in turn works under a chief engineer, who again works under the overall control of the 'Agent', who is responsible to the Company Management for the progress of the job, pricing of same, and who enjoys considerable local control. (If any 'Agents' read this, they may well consider my choice of the word 'enjoy'!) In Naval parlance, the Agent is roughly the 'Skipper', but he is answerable to a Flag. In a similar manner, the skipper has his heads of department. The point remains, that no matter who or what you were in the service, you are still initially very much a beginner in the outside world. Many an ex-R.N. Diver has come a cropper by being a 'know-it-all', and this attitude will be of no avail, and only ridicule yourself.

Providing the diver is willing to learn, which can be done every day, he can become a very useful member of a team which consists not necessarily of divers alone.

Some of the 'older citizens' of the diving world who read this article will remember the well advertised controversy of equipment choice, i.e., 'Steamer versus Corkhead'. This I discussed in a previous R.N. DIVING MAGAZINE article, but it never-the-less prevails. Some of the older civilian divers you will find still prefer to use helmeted equipment, even in extreme climates. As they are often the more senior, you too will have to be prepared to use what equipment is at hand. I still maintain that a diver, and the equipment, always providing of course that it is reputable and in good repair is purely a ways and means of performing a duty, and primadonnerish choices and demands for certain equipment can be another downfall of the transitionaly diver. It must be remembered that diving equipment is a heavy capital expenditure, and catering to personal whims is not a part of any commercial company.

My own findings about the totally civilian diver are that they are usually not too keenly appreciative of the 'Navy Diver', but this is partly the fault of the 'know-it-all' diver. Most civilian divers are extremely capable, certainly as practical divers, though their knowledge of decompression and use of more sophisticated equipment may be rather limited.

The attitude of some civilian divers can be obnoxious however, but again my findings of this case is restricted to cases where someone has a limited knowledge, usually gained by 'a friend', and has come into the trade in a very limited scene, and is somewhat apprehensive of a newcomer who may well have superior knowledge. Age, regardless of experience and training tends to be the prerogative in 'outside' life, and the newcomer need not be abashed

by this, providing he is somewhat diplomatic about it. Deeds speak louder than words, and this will usually soon be recognised.

One occasion when I did become annoyed was after 10 years of civilian diving I appeared on a new job, only to be greeted by a well known 'phoney' with the introduction of, 'are you a Bloody Navy Diver?' I regret to say my answer was 'Yes, my uniform is in my suitcase, and where can I tie-up the Battleship I came out on?'

I have now completed 11 years of happy civilian employment in such areas as the Bahamas, U.S.A., Arabian Gulf, Mediterranean, Red Sea (three times) and even the cold North Sea, and I can say that diving is a fine life, full of interest and to my mind, anyone who has had the benefit of Naval training, with the background work of the trials teams, R.N.P.L., etc. is well advised to follow the trade. The company is convivial, and the vast majority of firms give a very fair deal in return for a fair days work.

Most firms show a preference for service trained divers, and it is up to them not to let the side down.

When Seeking Employment, DO:

Look for a company with a history of diving accomplishment.

Look for a company which *you* consider suits your desires.

Enquire fully at interview as to all conditions appertaining.

Provide a good days work for a good days pay.

Stay clear of all union activity.

Be prepared to undertake duties other than diving, thus increasing your own knowledge.

Keep in touch with modern trends, through magazine articles and not least the R.N. DIVING MAGAZINE.

Follow all safety regulations and decompression schedules.

Use common sense.

Don't be afraid to ask.

Don't be afraid to go down a peg initially, especially if used to rank.

DO NOT:

'Spin a Ditty' at interviews, give experience and knowledge, also state what aspects you are rusty or ignorant of.

Sign a contract, then expect to alter conditions at a later stage.

Expect high salary for low output.

Be a 'know-it-all'.

Accept lowered safety standards.

Expect to be the conquering hero.

Link up with speculators, or 'one-man-bands' (unless your capital is £30,000+!)

Although I have kept manily to the Civil Engineering aspect, the views above are applicable to Offshore Oil and Gas and other fields. The views are of my own experience, but if this article can stir up any controversy, so much the better. In final summary I cannot stress too much, how in civilian life the diving is the least part, it is what you do whilst submerged that counts.

I cannot, and will not advise individual firms to work with, some initiative has to be shown in this respect, and you should know roughly your own earning potential.

Diver's Annual Reunion Dinner

THE Annual Diver's Reunion Dinner for 1970 will be held at Kimbell's Ballroom on Wednesday 4th November. Unfortunately due to ever rising costs the price of a ticket this year will be £2 2s. 0d.

In order to make the best possible arrangements, applications should be forwarded to the Editor as soon as possible. No bookings can be made without the receipt of money. Postal orders and Cheques should be made out to the 'Divers Annual Dinner' and crossed.



Cuff-Links

It is hoped soon to get cuff-links made.

The helmet produced in relief in a metal surround, the background then painted black.

The price being 17/6, enquiries and orders to the Editor.

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Admiralty Quality:

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Merry Mac's Morbid Musings

AS a small token of appreciation for an enjoyable two weeks training, I promised the Editor a short article for the magazine, so here goes.

Whilst undergoing the above training I frequently told people that I worked at the Royal Ordnance Factory at Bishopton. This was usually followed by the query, what is a Royal Ordnance Factory (R.O.F.), and, where is Bishopton? Bishopton is in Renfrewshire, Scotland and lies six miles West of Paisley.

The R.O.F. at Bishopton was built immediately before the Second World War and was intended to replace the Royal Gunpowder Factory at Waltham Abbey. R.O.F., Bishopton is now the main propellant factory in the U.K. and is engaged in the manufacture of propellants for guns, guided weapons, rockets and small arms, and has facilities for the production of all the intermediate products required, i.e. nitric and sulphuric acids, picrite, nitro cellulose, nitro-glycerine and ammonium perchlorate. The factory also undertakes the filling of rocket motors for guided weapons, the filling of mortar bombs and shells with phosphorus, and the breakdown of ammunition. Examples of the latter at present are squid projectiles and M.5 mines being boiled out and inert filled. It seems a shame to see all that lovely minol and torpex going up in steam and smoke. As District Inspector of Naval Ordnance, Bishopton, the author is also responsible for the inspection of Naval contracts at I.C.I. Nobel Division, Ardeer. Typical products from Ardeer will be familiar to all clearance divers, e.g. No. 80 Dets, No. 11 Safety Fuze and Cordtex. (If your charges fail, blame Mac).

Including R.O.F., Bishopton, there are now 11 R.O.F.'s in various parts of the United Kingdom. Each factory has a particular role and a range of manufacturing facilities appropriate to the products for which it is responsible. The following list gives brief details of the work carried out at each factory. It is worthy of note that all these R.O.F.'s are under the Army Department of the Ministry of Defence, although Naval weapons and explosives are produced by them.

R.O.F., Bridgwater, Somerset

This factory is equipped primarily for the manufacture of high explosives and plastic propellant. Typical products are R.D.X., H.M.X., Tetric Acid, Formaldehyde and Hexamine. P.E.4 and Sheet Explosives are also produced at Bridgwater.

R.O.F., Glascoed, Usk, Monmouthshire

Filling of High Explosives into War-heads, Shells,

Bombs, Underwater Stores, Mortars and Fuzes.

R.O.F., Chorley, Lancashire

The manufacture and filling of initiating compositions. Filling of caps, detonators, primers, fuzes, shells, cartridges, small rocket motors, engine starters, seat ejection cartridges, pyrotechnics and guided weapon components. There is within R.O.F., Chorley a Naval Proof Yard controlled by the Inspector of Naval Ordnance. As with all R.O.F.'s engaged in actual manufacture and filling of explosives, R.O.F., Chorley covers a very large area. In the middle of this R.O.F. an eighteenth century dwelling has been restored to its original state in regard to colour and fittings, as it is preserved as a historical building. The original owner of this house forsook all, and went to follow Bonnie Prince Charlie (the Young Pretender) on his march to the south (Derby). Unfortunately, like many another loyal follower of Charlie he was killed in action, so did not return to his beautiful home.

R.O.F., Radway Green, Alsuger, Crewe, Cheshire

Produces small arms ammunition, detonator tubes and other ancillary items, e.g. steel ammunition boxes.

There is an extensive small arms Proof Range.

It should be noted that Bishopton, Bridgwater, Glascoed, Chorley and Radway Green are all filling factories, i.e. they all deal with explosives. The remainder of the factories (R.O.F.'s) although producing armaments do not manufacture or fill explosives.

R.O.F., Blackburn, Lancashire

Production of Fuzes of all types, Safety and Arming Mechanisms for Guided Missiles, Clockwork Mechanisms, and a wide range of Electronic Equipment.

R.O.F., Birtley, Co. Durham

Brass and steel cartridge cases, shot and shell.

R.O.F., Patricroft, Eccles, Manchester

Warheads, Bombs, Shells and Ceramic Radomes.

R.O.F., King's Meadow, Nottingham

Guns, Mountings, Mortars (bombs), Rocket Launchers and Vehicle Recovery Equipment.

R.O.F., Leeds

Tanks, Armoured Fighting Vehicles and associated equipment.

Royal Small Arms Factory, Enfield, Middlesex

Production of Small Arms, Cannons for Aircraft and Vehicles, Machine Guns, Rifles and Bayonets.

MAC.

A Diver's Guide to Sharks

Part 2

11. The Phenomenon of Blood Lust

Some of the worst collective tragedies caused by sharks have been associated with the swimming survivors from sinking ships or other marine disasters in tropical waters. It is a fact that whilst a lone shark may leave a tempting bait untouched, in certain circumstances a horrifying blood lust can seize sharks when they are in numbers at the scene of an attack. Excited by the sight and smell of an attack by one of their number they will suddenly throw all caution to the winds and attack and re-attack everything in their vicinity including each other. Other sharks, attracted by the commotion and carnage will close the scene and possessed by the same feeding frenzy, kill and gorge themselves until satisfied.

12. Measures to Prevent Shark Attack

Ways of discouraging shark attack are the subject of constant research. Disappointingly few valid findings have been forthcoming. Sharks seem to be remarkably resistant and unpredictable. Underwater explosions fatal to most fish in the vicinity often leave sharks unworried. Harpoon and knife wounds, blows and rifle bullets unless directed at vital spots do not discourage them and have the corollary disadvantage of attracting other sharks to the scene. Many divers with experience say that shouting underwater will frighten a curious shark away. Research does not bear this out, although it may succeed if the shark is at close quarters and the shout is loud and abrupt. When the shark is not close by, shouting is more likely to arouse curiosity and should not be attempted. The various chemical shark repellants developed during the Second World War have proved to be of very limited effectiveness. In Australia, where intrepid spear fishermen hunt sharks (an excessively risky proceeding), hypodermic harpoons charged with poison and harpoons or Hawaiian slings with a buckshot explosive cartridge or rifle bullet in the head are used successfully. Moreover these divers have perfected the skill of shooting sharks with an unbarbed harpoon straight through the brain, which is to say from directly above, aiming between and slightly behind the eyes. However, they are trained, equipped and organised specifically for this sport which service divers are not, and we should never attempt to defend ourselves with these weapons in the course of routine diving.

Recently some useful discoveries have been made. It has been found that all sharks find the contact of clean bare metal on their skins distasteful and seldom attack an object with a metallic surface. Whilst some fish have little fear of an electric field, the shark is sensitive to electric shock and battons designed to give a high voltage discharge on contact are reasonably effective deterrent weapons against shark attack. Recent research with chemical repellants whose role is to irritate and engorge the membrane of the gill organs have proved that these substances are effective in discouraging and indeed incapacitating if put into solution in the sea-water near the shark. It is believed that the insecticides used by Asian spear fishermen have this effect, as do silicone-based compounds used in agriculture to seal irrigation canals against seepage.

13. Commercial Value of Sharks

Sharks are caught commercially for flesh which after processing makes excellent eating, for the skins, which when cured provides an exceptionally strong leather, for shark liver oil, and for the fins, the gelatinous matter of which is prized by the oriental as a culinary delicacy.

14. Conclusions

The shark remains something of a mystery. A throwback to the earliest stages of evolution, his magnificent vitality and power have enabled him to survive and to thrive through eons of time unchanged. Adaptable, tough, predatory and unpredictable, this creature deserves our respect. Newcomers to the sea as we are we should give him a wide berth, leaving him to his dominion.

The Navy Waxes Lyrical over its Rum

AN underground resistance movement is gathering forces to fight for the retention of the Royal Navy's tot.

As the Admiralty Board discusses the future of the Senior Service's daily rum ration, a publicity campaign is being mounted to gain support for the traditional sippers.

Joining those 'Fly Navy', 'Dive Navy' and 'Sail Navy' labels which appear in the rear windows of cars is a new one . . . 'Save The Tot'.

Inquiries to trace its origin have revealed that the identity of its distributors is one of the Navy's best-kept secrets, writes *The News Naval Correspondent*.

IN CIRCULATION

Preservationists have become poetic in their 'campaign' literature. Below is a poem currently circulating in the Portsmouth area from an 'undisclosed source'.

In the Navy of the seventies,
The beginning of the rot,
The day that killed the Andrew
Was the day they Stopped the 'tot'.

Oh they don't go East of Suez,
Or West of Panama—
When your belly's full of 'limers'
You can't go very far.

The legend on the Rumtub
Is still there to be seen
But the motto looks quite silly
On the side of a 'goffa' machine.

You will hear old sailors saying
'It will never be the same!'
And when they talk of 'bubbly'
They don't mean French champagne.

Did Jack flinch at Trafalgar
As he faced the shot and shell?
With a 'tot' inside his belly
Our Jack would sail through hell.

At ten to twelve each forenoon,
Since the Andrew first began,
Jack drinks the health of Nelson
From Jutland to Japan.

Their Lordships sip their sherry
And cry 'More efficiency'—
But what works fine on paper
Doesn't always work at sea.

Now Jack's a humble sailor,
Who doesn't ask a lot,
And after Trafalgar and Jutland
Who dares to stop his 'tot'?

He's always done his duty
To country and to throne,
And all he asks in fairness
Is: Leave his 'tot' alone!

* * * *

And, if you are reeling up to it, here's another . . .

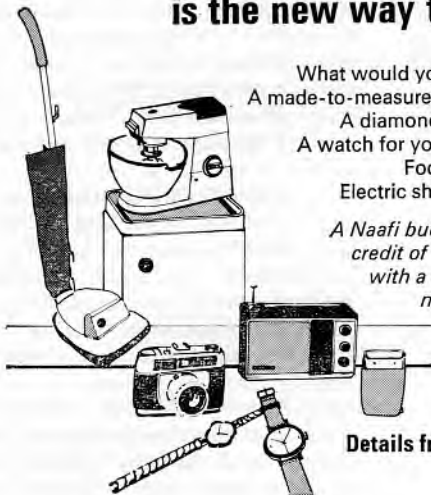
Right now some rumours rather rum
Are making Jolly Jack look glum—
It seems some sacrilegious gent
On sinful sabotage intent
Some Civil Servant like as not,
Is out to stop the sailor's tot—
That daily jolt of giggle-juice
With all its side effects profuse.

Without its hallowed cackle-gravy?
How will the sea-dog plough the ocean
Without his grog—his tonsil lotion?
'Up spirits!' bo'sun's mates now bawl,
Are we to lose this stirring call?
Must Jack forgo the fiery flood
That fills his veins with Nelson's blood?

Abandon all those mid-day pleasures
Of challenging these sacred measures
And all the lethal birthday joys
Of taking 'sippers' from the boys.
In short, will silent salts stay dumb
If someone robs them of their rum?

GOLF	FOOTBALL	SQUASH	HOCKEY	FENCING	
CRICKET	Tel. PORTSMOUTH 20611			FISHING	
INDOOR GAMES	<i>Sportsmen shop at</i> THE SOUTHERN SPORTS SHOP			BOXING	
WEIGHT TRAINING	<i>Personal attention from</i> Peter Anderson Ken Edwards			BOWLING	
ATHLETICS	48 ELM GROVE SOUTHSEA HANTS			CAMPING	
JUDO				FIRE ARMS	
BADMINTON	RUGBY	UNDERWATER EQUIPMENT			TENNIS

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Details from any Naafi naval canteen or shop

July the something or other

POSITION:—*somewhere between Chipping Norton and Lesser Stow-on-the-Wold.*

To anyone who cares:

WE have walked this week about five hundred miles, across meadows, cornfields, railway tracks and bridle paths in search of elusive flood arches and culverts—our bodies are torn to shreds by thorns, we are badly stung by a strange land plant known as stinging nettles.

We have twice narrowly missed being run down by fast moving trains. I spotted a large adder basking in the sun and forgot to warn 'Tom Norman' who was following close behind—he walked the next hundred yards in the air—a truly remarkable sight.

When we eventually find the culverts we find they are dry and so continue on in the merciless heat line ahead like a lot of frustrated ducks. We remember the good old days in the Navy when we had a ship to take us everywhere. We don't talk much as our mouths are too dry and swollen, we would even settle for a cup of that foul coffee from the machine.

If we avoid getting swamp fever and our strength holds out we should be back at base on Friday.

Goodbye until then.

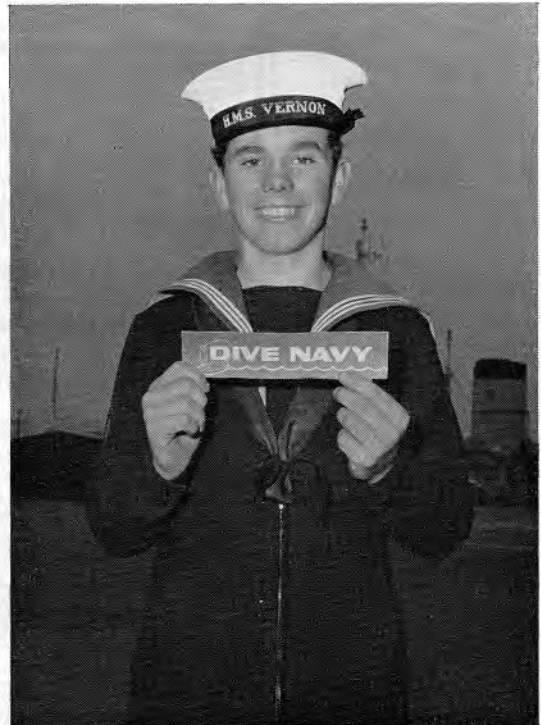
BOB KEAN
(Strongwork Jungle Dept.)

Youngest Naval Clearance Diver

Instructional Diving Section,
H.M.S. *Vernon*.
10th November 1969.

JUNIOR Seamen Ian Kelly, age 16, whose parents live at 13 Malvern Gardens, Gateshead, Co. Durham, is the youngest man ever to qualify as a Clearance Diver in the Royal Navy.

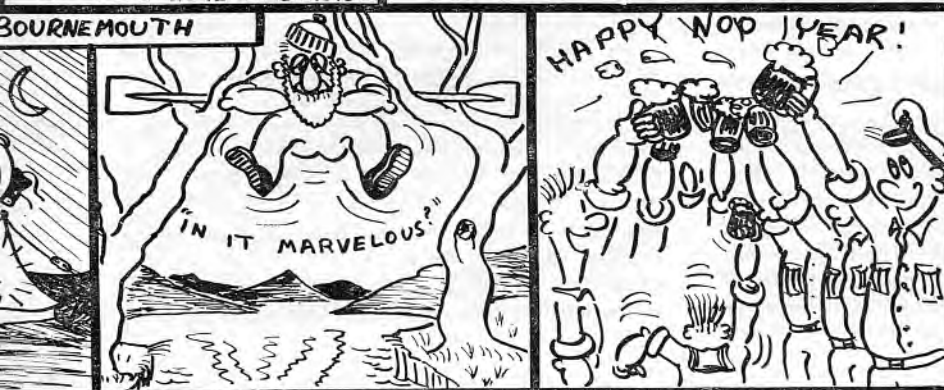
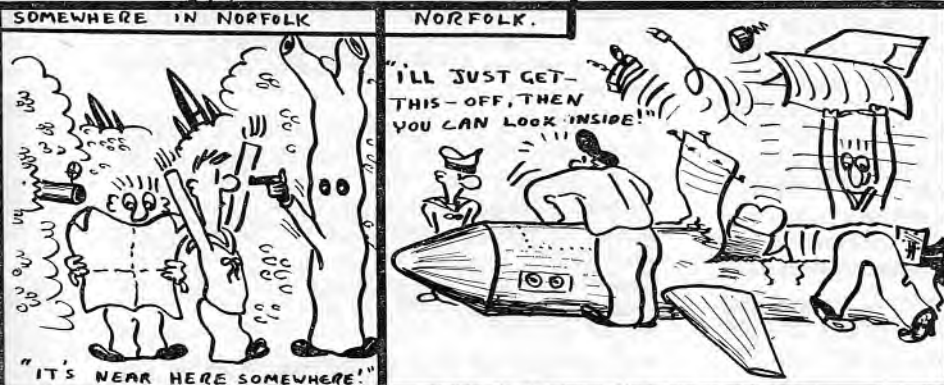
Ian, a former pupil of Lobley Hill Juniors School and Hillhead Secondary Modern School joined the Royal Navy in September 1968. He did his basic training at H.M.S. *Ganges*, Harwich, Suffolk and on completion volunteered to be a diver and was sent to H.M.S. *Vernon*, Portsmouth, for training. He successfully completed the course for Clearance Diver on 7th November, and joined H.M.S. *Bronington*, based at Rosyth, Scotland, in November 1969.





SPECIAL BOAT SECTION - ROYAL MARINES - POOLE





Report from the Deep Trials Unit

JANUARY 1970

by UNCLE 'BILL'

THE five yearly test and refit programme for the Deep Trials Unit started 1st May 1969. The installation of the O₂He supply and reclamation system was carefully dovetailed into the programme in an effort to avoid loss of valuable operational time. Regrettably, in spite of the strongest possible protests at the delay, the refit and extension of the facility, which was originally scheduled for completion on 1st October 1969, is still being progressed as I write in the 1st week of January 1970. The excuses for the blatant inaccuracy of the 'completion date' have an all too familiar ring and I will not bore you with them, but in case you should draw the wrong conclusions, I must just say that the delay is no fault of the Dockyard Departments who have been eager, helpful and on schedule throughout. A realistic date for resuming operations, which is purely my personal opinion, is the 1st June 1970. Sad and frustrating just about sums up the situation, however it's an ill wind that doesn't blow good somewhere and for us it has been a question of capitalising on the extra time available to get a lot more done on the Dockyard side than would have been possible under the original time scale. We have not been idle either because apart from dealing with the many problems, snags and the impossible interpretation of the draughtsman's 'warm office concepts', we have been giving back-up and 'subject' support to R.N.P.L.'s programme for a 1,500 foot dive, the latter item being a terrific morale booster in view of our temporary enforced inability to progress the R.N. Deep Diving Research Policy.

Before giving a summary of the 'Alterations and Additions' that are taking place in D.T.U. it might be as well to look back to what we achieved just prior to being 'taken in hand' by the Dockyard and Contractors:—

Testing of the 1968 Decompression Tables

These tables were devised from the analysis of a vast number of 'dives' carried out in connection with compressed air work in caissons and tunnels. They were first tested during the construction of the Blackpool Sewage Outfall after which, they were thought to be suitable for divers! The Royal Naval Physiological Laboratories produced the tables in the form you see here for the benefit of industry in

the first place, and for the R.N. acceptance if considered appropriate. These tables cater for dives to 250 feet on air and allow longer bottom times than ours existing tables—at a price of course! They also cater for breathing Oxygen during decompression and for repetitive dives, the latter I am pleased to say in a logical and seamanlike manner. 171 check dives were made in D.T.U. before further testing by H.M.S. *Reclaim* at sea. *Reclaim* achieved 168 dives. Five bends resulted, four in D.T.U., one at 160 feet for 30 minutes, two at 160 feet for 1 hour and one at 240 feet for 15 minutes, all successfully treated on Table 6A. *Reclaim* suffered only one bend at 250 feet this, incidentally, being the first time I can remember Sea Trials producing less bends incidence than simulated chamber dives—perhaps D.T.U. is physiologically more realistic than we are sometimes given credit for!

This programme which aims at providing saturation diving schedules to 600 feet was started with nine dives to 300 feet for 4 hours as a check out-for procedure, control and instrumentation. These dives proved very satisfactory and were followed by nine dives to 300 feet for 8 hours and six dives to 450 feet for 4 hours.

In spite of a very light work routine 4 minutes rowing every hour, four bends developed. This led to a departure from stage decompression to a continuous bleed routine but even this was not entirely successful. This work will be continued when D.T.U. gets back on the 'duty free' list. By then Oxy-Helium diving should not be such an expensive business, but more of this later.

Western Fleet and H.M.S. 'Reclaim' Work-up and Training Dives

During the period under review (i.e. October 1968 to May 1969) the Western Fleet and H.M.S. *Reclaim* teams came to us for work-up dives to 250 feet. Training classes were dived whenever possible for a pre-taste of their imminent sea dives to 180 feet with C.D.B.A., and to 250 feet with S.D.D.E. The 'flavour' of the breathing media at these depths, frequently surprises the candidates, and the diving training staff, and we at the D.T.U. feel that the experience gained is immensely valuable to the trainees before they embark on their open sea dives

from *Laleston*. It also results in a marked decrease in the frequency of 'Instructor's Twitch'. In the categories I have just referred to a total of 93 dives were performed.

Commercial Enterprises

Dovetailed into the foregoing programmes were agreements with non-service organisations to use the facility to benefit their particular lines of research. Brief details of our 'paying guests' and their activities are as follows:—

Divcon International

Divcon International spent three weeks with us testing schedules to 500 feet and 600 feet for 30 minutes and 1 hour bottom times. The schedules were supplied by Westinghouse and devised by Dr. Goodman, formerly with the U.S.N. Experimental Diving Unit and who, incidentally, takes most of the credit for the highly successful Oxygen Therapy Tables. Regrettably for Divcon, his decompression tables were not so good, and the bends incidence was high, however, the Helium speech unscrambler, produced by Standard Telephones and known as 'HUSTLE', was most impressive. Also impressive, and in favour with the divers, was the British 'WINDAK' deep-diving breathing apparatus.

Strongwork Diving (International)

Strongwork Diving (International) led by ex-C.D.O. stalwarts Harry Wardle and Jack Rea, came for 10 days to test Harry's theory that Air diluted with Helium would ease the air narcosis problem without creating, to any significant extent, the cold and speech problems associated with Helium and, at the same time, if successful, would provide tremendous benefit logistically, inasmuch that it would only be necessary to have air and helium gases available, which would greatly simplify the supply problem to remote diving sites such as oil rigs. This philosophy was intended to cover diving down to moderately deep depths of 350—400 feet which Strongwork figure will adequately provide their bread and butter for the immediate future.

In the short time at their disposal, Strongwork achieved 32 dives at depths ranging from 90 to 350 feet and although no precise measurements were taken, they were satisfied from the objective reports from the divers that their theory works out in practice. They have requested a further two weeks in our future programme to confirm this, and to extend their depth capability to 600 feet.

B.I.P.M.

Last but by no means least, we had a repeat visit from Professor Buhlman and his team from Zurich, again sponsored by Dutch Shell. A superb dive resulted in which the longest and deepest saturation dive the World has known was achieved. Three divers lived at 1,000 feet with twice daily excursions to 1,125 feet, for a total time of 81 hours, 11 minutes. Frequent physiological and other tests were made during the dive and the divers spent up to an hour each forenoon and afternoon diving at maximum depth. It was quite fantastic to see the apparent ease with which the divers were able to swim and manoeuvre—their ability to lift the $\frac{1}{2}$ cwt. sinker from the deck over their heads (18 lifts in 2 minutes) and their apparently normal reactions to surface instructions.

The breathing apparatus used was Drager F.G.G.3 supplied via flexible hose from its associated panel mounted inside the Diving Vessel.

Total decompression time for two of the three divers was 88 hours whilst that for the third diver who developed bend symptoms at 10 feet was a further 5 hours.

It would have been much more satisfactory, in the patriotic sense, if this dive had been carried out by R.N. divers, the only consolation I can offer on this score, however, is that it would have cost we over-taxed citizens in excess of £3,750 for helium alone, which explains why we are currently having Helium reclamation added to the Deep Trials Unit's capabilities. Another facet of these commercial intrusions is that whilst they are with us we become the showroom for the most advanced equipment in existence and what is more we can assess its apparent value by observing it in use at its maximum depth.

Before passing on to a few brief comments about the new look D.T.U. I would just add that the Buhlman venture was the first time that we have operated D.T.U. for a manned dive to maximum depth, its performance and degree of control proved excellent.

There is no room for complacency however, and to assure you that we are not resting on our laurels, I will give you a few very brief details of the new components being introduced during this refit:—

Oxy-Helium Supply and Reclamation Unit

This Unit is being installed in a new building married to our original structure and extending 60 feet from it in a northerly direction. The functions of this installations are to store Oxygen, Helium and various mixtures required for B.I.B.S. at a maximum pressure of 4,000 p.s.i., to deliver these gases to where they are required for diving and to recover, purify

and restore the gases during decompression. It is envisaged that we shall have a big 'Ammunition Ship' operation initially to take on the gas and thereafter top up at something like six monthly intervals. The principal components of the system in their sequence of use, are as follows:—

Vacuum Pump

This is to remove the atmosphere from the diving chambers, pipes, etc. to prevent nitrogen contamination of the Oxy-Helium gases. Some will doubt the necessity to do this but it is best to have the facility available as it may well be necessary for pure research.

Pressurisation

This is achieved by selecting the gas required from the 78, 9.1 cubic feet bulk storage cylinders and putting it onto the common O₂He/Air charging main which will have been previously isolated from the air storage and vacuumed.

Reclamation

On decompression the exhaust gas is routed to two large inflatable gas recovery bags from whence it is either passed through filters and recompressed back into the storage cylinders or passed through the cryogenic system for the elimination of oxygen, nitrogen and other undesirable gases before being restored as pure Helium.

A Corblin Compressor with 70—80 cubic feet/minimum capacity is used to suck the gas from the gas storage bags and deliver it where it is required. A smaller Corblin is used specifically for compressing pure O₂ during the storage operation.

No. 2 Console

A second console is being installed to cope with the increased control necessary and as a means of tidying up the various items of instrumentation, etc. that have been added over the last five years.

Atmosphere Control

Provision is being made for full air conditioning by continuous circulation of the chamber atmosphere through a comprehensive unit which will control the temperature, humidity and remove the CO₂.

Filtration

Filtration of the water in the Diving Vessel will in future be possible whilst the vessel is still at pressure

and special 'minipore' elements will be incorporated to trap bacteriological activity which in the past has led to minor ear irritation on long saturation dives.

Air Lock Controls

To reduce congestion on No. 1 Console the controls for operation of the Air Locks have been removed and sited adjacent to their respective air locks. This will allow a fast 'Doctor lock-in' with minimum interference at the control centre.

Strain Gauge Ergometer

This will replace the old trapeze type swim machine and will give a read out of the total swimming effort over a period. With this installation it is hoped that 'cheating' will be impossible, though to be sure, if there is a loophole, the divers will find it.

Radio and Television

For the entertainment of the 'subjects' on long decompressions an improved radio has been acquired and, wait for it!, arrangements are being made for the reception of live T.V. programmes in the Diving Vessel and compression chamber.

Physiological Instrumentation

The array of instruments required to monitor the various physiological parameters seems to grow rapidly and with this in mind and the limited space available in our operations room, attention is being given to converting the Divers' Rest Room into an instrumentation centre.

Accommodation

In view of the previous item and because the accommodation for diving teams was not adequate anyway, Portsmouth Form 71a action has been taken and approval given, for service standard accommodation to be built alongside D.T.U. to accommodate the A.E.D.T. and others whilst engaged on saturation diving trials.

I hope all this will add up to a 'new look' D.T.U. that will be well worth waiting for, meanwhile, roll on our next dive!

Clammy Death

WHILST clearing out a diving store I found six oval pieces of perspex and one of my divers asked me what they were. When I told him they were 'Clammy Death' windows, I had to follow up with a story which may interest some of today's young divers.

'Clammy Death' was the nickname for the 'Sladen Suit' which was designed and developed by the R.N. Diving Section, under Captain W. Shelford during the Second World War. It was designed for special operational use in Naval Warfare, and was probably named after Commander G. M. Sladen, who planned the first Chariot operation in Palermo Harbour, on 2nd January 1943.

Following Naval custom, the suits came in two sizes 'Big' and 'Very Big', so that men of my size 5ft. 6in. were lucky to get the smaller of the two sizes. Heavy diving boots made of leather with brass toe-caps and brass corrugated soles were worn and laced up with a slip knot, then the boots could be slipped in an emergency. There was a self contained Oxygen Breathing apparatus consisting of Oxygen Cylinders, Counter Lung, C.O₂ absorbent (Protosorb) and a relief valve.

The suit itself was made of heavy ruberised twill, it was an all-enveloping dress complete with thick moulded rubber Head piece. The hood had an oval perspex window which could be opened to put on the nose clip.

Entry to the suit was made through a ventral skirt in the back, and metal clips, together with a rubber

belly-band, made everything water tight. After stepping into the legs of the suit, the diver then put his head and arms into the top half of the suit and forced his head into the moulded hood, which fitted snugly to his face. The Divers condensed sweat made the hood feel clammy on his face, hence the first half of an appropriate nickname.

Very few divers liked the Sladen Suit, but at that time, it served its purpose. During the Solerno Harbour raid, one charioteer was drowned in his suit. Besides the possibility of a 'Russian Cocktail', there was little chance of getting out of the suit unaided in an emergency, even if the diver did manage to slip his boots, and surface. At one period of my training I worked with Surg. Lt.-Cdr. Oliver (Dental) who was known as 'Toothy Oliver'. Toothy was one of the few people I knew who liked his Sladen Suit, he once rode a bicycle in 15 feet of water with it. I tried the same feat but with the crotch of my suit down to my knees I could not get onto the saddle. Toothy was 6 feet tall and his suit was a much better fit.

There are not many people left in the Royal Navy who have used 'Clammy Death', just one or two high ranking officers, but there must be some very interesting yarns from any one who had the privilege to dive in a Sladen Suit.

R. LENNON, The Anchorage, Almonds Grove,
West Derby Village, Liverpool, 12

* * * *

ED.—I am sure that entry was from the front.

European Diving Training Courses and Tourism

IT is evident that Europe is presently making an effort to find, through numerous initiatives, a point of contact among the different nations that form this part of the world. But the first and most genuine contacts among people of different nationality are still achieved through sport and tourism.

One of the purposes of the initiative we are sponsoring is that of approaching European People through combined underwater sport and tourism. Diving is a silent sport, therefore it creates a perfect

understanding regardless to the language barrier.

The chosen spot to realize this programme is Riva del Garda (Garda Lake, Italy) an ideal location for such an initiative.

In this task, our strongest effort will be that of complying with a programme which will have to be able to create an atmosphere of plain cordiality among all participants regardless to the individual's nationality.

Therefore we will organize every day the following

activities: diving classes, tours on the lake, aquatic games, short trips of tourist interest, picnics and dancing parties. But the base of each stay will be the 'Diving Training Course', from basic training to advanced diving technics. Individuals already familiar with diving technics will attend advanced training.

All necessary diving equipment will be at the students disposal. Students will be allowed to use their own equipment.

At the end of the course an attendance report will be issued, by the 'European Diving Training Course', to each student.

Hoping to see you next summer at Riva del Garda we send you our best regards.

Periods and Dates:

- (A) from 27th June through 4th July 1970
- (B) from 4th July through 11th July 1970
- (C) from 11th July through 18th July 1970
- (D) from 18th July through 25th July 1970

- (E) from 25th July through 1st August 1970
- (F) from 1st August through 8th August 1970
- (G) from 8th August through 15th August 1970
- (H) from 15th August through 22nd August 1970
- (I) from 22nd August through 5th Sept. 1970

The price fluctuates according to the category or the chosen Hotel and includes the training course and use of the equipment, full boarding, tours on the lake, excursions, picnics and dancing parties.

Hotel cat. A Lire 68'000

Hotel cat. B Lire 61'000

Hotel cat. C Lire 54'000

Hotel accommodations will be in rooms with two beds, bathroom. An extra charge of Lire 400 will be charged for accommodation in single rooms.

Reservations should be sent to the Travel Office, 'ATESINA', Viale Rovereto, 19, 38066 RIVA DEL GARDA (Telephone Number 52385), before April 16th 1970, accompanied by an account of Lires 20'000.



First C.D. Basic Course

First C.D. Basic Course

FOR those of us too busy to read D.C.I.'s and who stare with disbelief when first sighting a five foot two Clearance Diver: here is an abridged and unofficial version of the one concerning the C.D. Basic.

The course itself comprises eight weeks of fairly intensive diving: the first three and a half weeks being a Ships' Diver Course and the remainder an introduction to oxygen and mixture breathing. The end product is a diver qualified to dive to 120 feet using 40/60 mixture, but who, unlike a C.D. II knows nothing of Dome and Screw change, mine disposal or demolitions. On completion, the survivors go off and do a two weeks P.C.T. on Minehunting before going to sea to continue their training and qualify C.D. star after six months in their hunters.

The first course was completed in November 1969, and we now possess seven of the youngest ever C.D.'s. If sufficient numbers are forthcoming it is hoped that in time this will be the main method of entry into the C.D. Branch: and provided we feed them—and they actually grow—the system should work. We hope so anyway. It's difficult at this stage

to arrive at an accurate pass/fail rate, but it would seem to be no worse than the present C.D. II failure rate. However winter is almost here and then we will see.

As courses go, the C.D. Basic one is particularly gratifying for the instructor. (During the second week the C.D. I was overheard wishing for another pair of eyes or ten second dickies). However the qualifier is, we are sure, a keen young diver who only needs experience of the right sort. To this end here is a short list of additional qualifications we were unable to teach on course and which are not listed in the D.C.I. under continuation training:—

- (a) Recognition features of lobsters and crabs.
- (b) How to complete Form S.542.
- (c) The condition of 'ears'.
- (d) How to flannel the C.D. I

Finally, will Their Lordships please add to 'qualifications for selection for C.D. Basic' a new paragraph: 'There must be at least 2in. clearance between the tops of boots and bottom of S.A.B.A. set' otherwise we can't tie the laces.

Book Review

"The 'Elingamite' and its Treasure"

by WADE DOAK

SHIPWRECK off the New Zealand coast and the excitement of a modern search for gold.' These words on the jacket are an apt description of this book which should appeal to those for whom sunken wrecks and their exploration hold a fascination.

The ship concerned is the passenger steamer *Elingamite* which was wrecked in November 1902 on one of the desolate Three Kings Islands north of New Zealand. The episode was one of the major shipping disasters of that part of the world for many lives were lost as well as the ship and its cargo, which included bullion in the form of gold and silver coins en route for banks in the British colony of New Zealand.

The book consists in effect of two parts. Firstly there is a very detailed and absorbing account of the events and circumstances surrounding the tragedy,

almost seventy years ago. The author's industry in compiling such a history from contemporary newspaper reports and from numerous other sources including even a conversation with the sole living survivor possessing clear memories of the disaster is amply justified. The vessel's last fateful voyage across the Tasman sea, the chaos as it struck the sheer rock face of West King Island, the belated rescue operations, the tension of the subsequent official enquiries, all these aspects of the *Elingamite* affair are skilfully reconstructed. Numerous phrases used by survivors serve to convey the atmosphere:

'Ahead I saw a great green mass with white in the foreground. Another moment we saw breakers and realised we were running into a huge cliff . . .'
'The rock sprang suddenly out of the dense cloud'.
'A great ringing of the Captain's bell, a grating on the rocks, then a crash as if the bottom of the ship

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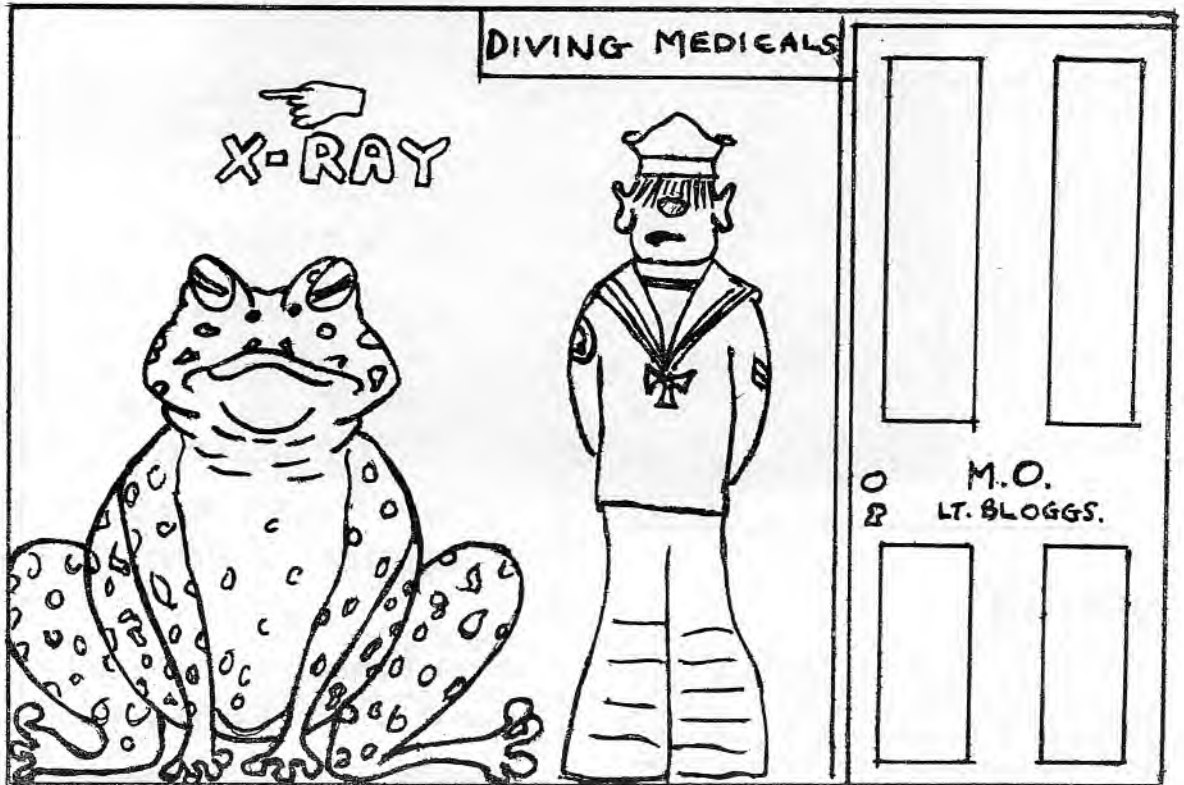
had been knocked in, followed by a scraping and grinding as of the keel on the rocks'.

All this, clearly and convincingly related by Wade Doak, makes particularly interesting reading. So too despite the confusing layout of some of the chapters does the other 'side' to the book which is an account of a series of Scuba expeditions to the West King Islands carried out in recent years by a team of New Zealand diving enthusiasts one of whom was the author. Spear-fishing and study of the astonishingly varied sea life were the objects of the early divers and numerous encounters with kingfish, tuna, bass, groper, etc. are recorded. With the location of the scattered wreckage of the *Elingamite* retrieval of the treasure became the prime aim of the divers. How this was achieved over a period of several years

is told with great thoroughness, illustrating the many problems and setbacks which inevitably arise when an ambitious and dangerous operation such as this has to be carried out on limited resources.

A fortune in gold and silver still remains on the sea-bed but any one contemplating an attempt at its recovery would be well advised to study this book beforehand for the hazards of diving to 150 feet amidst the pounding seas, flying spray and fierce tides which are apparently commonplace off West King Island are emphasised throughout. The book is a comprehensive, competently written account of what was without doubt a very lucrative enterprise for those concerned. The inclusion of many relevant photographs adds further to the book's appeal.

LT. BARNETT.



'Bit overweight aren't you?'

Sports Report

Deepwater, lost their last game of rugby. Now, P.O. Humphrey, the sports reporter has got a S.A.D. on and won't report anything, except to say it was a *Sirius* game and he don't know the score. ED.

FREE DIVING RECORD

On August 14th 1969, Vincenzo Majorca has improved his previous free diving record reaching in the open sea of Siracusa the depth of 72 m. (236.22ft.)

Jacques Mayol filled the functions of the C.M.A.S. Umpire.

The Majorca record has been homologated by the Executive Bureau.

RUGGER — 1969 SEASON

Deepwater Pirates,

This year saw the revival of the Pirates 15. As usual, it was backed by tremendous enthusiasm.

To date, we have played five games with only one defeat. Our two clashes with *Reclaim* have provided the best of our matches so far, with everyone getting stuck in; our final game this term with them will be eagerly contested.

I would like to thank all those concerned in the Division for giving such excellent support to what must be a promising start for *Deepwater* team.

VIC HUMPHREY.

Shamed into writing.

ED.

NEPTON

From the minutes of the Naval Air Command Sub-Aqua Club meeting on October 1969. 'After discussion it was proposed that *Nepton* should be discontinued. Full use should be made of the R.N. DIVING MAGAZINE now in its new bumper size cover, and that all articles of a diving nature, should be submitted to the Editor.

Proposed C.P.O. Brooks. Seconded C.P.O. Peake. Carried Unanimously.

SPORT Stop Press

CHALLENGE SHIELD

At present we hold the Shield in Vernon. An excellent win at volley ball and a hard crushing defeat inflicted on the Seamen at deck-hockey means that we have the Shield, and we intend to hold on to it.

RUGGER

Progressing as before along the winning path, with wins over teams produced by Excellent and Albion, enthusiasm is as high as ever.

SOCCER

Knocked out in the Semi-Final unfortunately, but a good effort never-the-less.

VIC HUMPHREY.

More Stop Press

HORSEA ISLAND OPEN DAY

Unfortunately the Horsea access road will not be completed by Open Day, 17th May. So the usual parking arrangements on the mainland will be used.

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invites you to stay at

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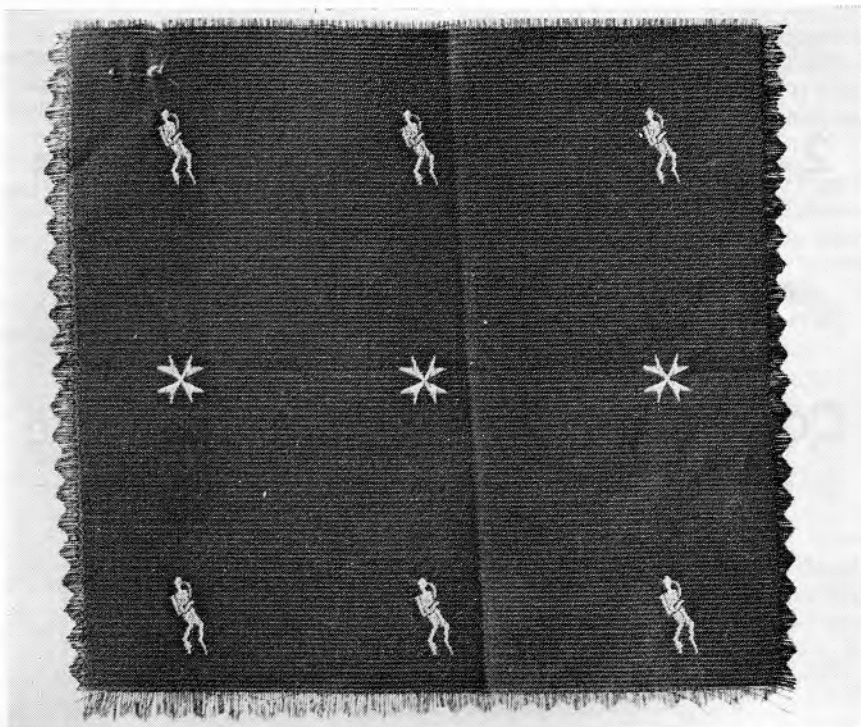
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(Volume 14-2)



The tie is now on sale to all past and present members of the Mediterranean Diving Team from the DIVING MAGAZINE office, price 15/-.

ED.

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Diving and Insurance

by A. N. DAVIES

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MOST people during their lifetime come into contact with Insurance Companies and effect some form of Policy whether it is life, motor, fire, or accident cover. As Divers in the Royal Navy the subject of Life Assurance is of paramount importance to you all especially those of you who are married.

A Life Assurance Policy is in its simplest form a means of covering a risk which is bound to happen by paying a sum of money to cover that risk. Obviously this type of Policy can be refined and can provide a lump sum payment at the end of a specified number of years over which the investments are made. The class of Policy does in most cases carry a 'bonus' and this is distributed by way of profits at the savings period.

As Divers how many of you have ever checked your Life Assurance Policy to ascertain if the In-

surance Company will pay the full sum assured to your next of kin should you die as a result of a diving accident? Regrettably they do occur from time to time in the diving world and it is essential that if you do have Life Assurance that the Insurance Company do pay out the full value of the Policy. If you should be unfortunate enough to have a Policy not covering you, it is suggested that you contact your own advisers or an Incorporated Insurance Broker who will be able to give you this advice. This coverage should not cost you any more in premium on account of your occupation, but it should be pointed out that this is a very specialised market and one in which you should take specialised advice.

With so much emphasis in the Press and elsewhere on the very high returns from Insurance Policies the table below has been compiled to give an indication of the great difference in Profits between an average Company and a top rank Company. The figures are based on current rates of bonus in all cases.

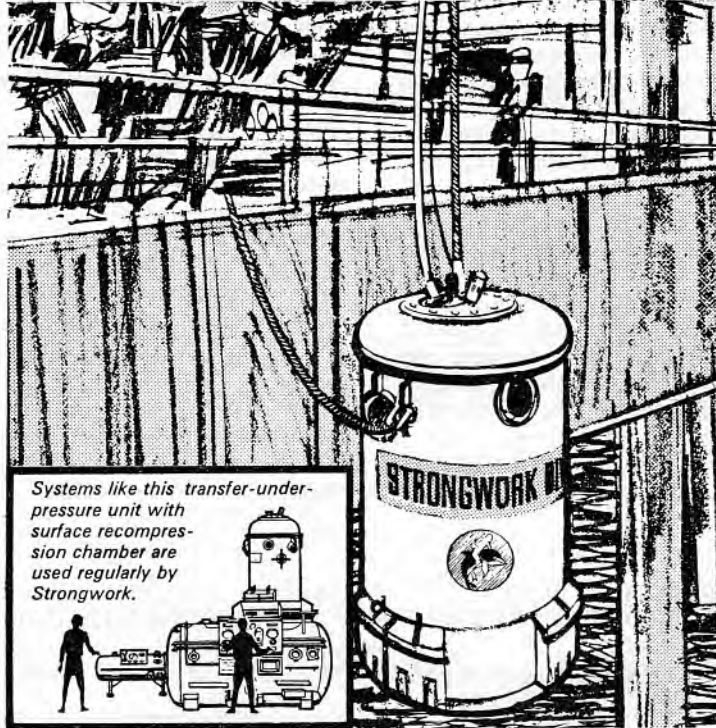
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25	£1,400	£2,485	£1,264	£2,926
35	£1,325	£2,338	£1,220	£2,824

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Letters to the Editor

Dear Sir,

As a Dutch subscriber to your Magazine I have four questions I would like answered:

- (1) Why return to 600 feet, for 3 hours?
(Volume 15, page 9).
- (2) What is meant by Open Circuit, are there any other circuits of so information please.
- (3) What is a work-up, a wash load, and what do we know of Asceptic Necrosis?
- (4) Could you tell me best place to fasten watch depth gauge and compass to your body so as not to interfere with freedom of movement.

Thank you,

A. BONGERS.

Sir,

Thank you for your letter and questions. I have answered your questions as best I can, but some of them are open to debate, so I have decided to put your letter into print. Ed.

The Editor
Royal Naval Diving Magazine
H.M.S. Vernon
Portsmouth, Hants.
4th September 1969.

Dear Mr. Bongers,

Thank you for your letter of the 17th August 1969, and the questions which I will do my best to answer.

I regret that I am unable to answer your first question as the article was produced in the United States of America, and was to do with the American Sea-Lab experiments and as such we in the United Kingdom do not know their schedules, it would therefore not be prudent for us to comment on this work.

By 'open circuit' the Diving School means any circuit which exhausts to the air or the water around the diver such as standard diving equipment, S.D.D.E.—S.A.B.A. We do have such a thing as a closed circuit breathing equipment where the gas which the diver breathes is used time and time again,

this is done by passing the exhaled gas through a canister of soda-lime and removing the carbon dioxide from the exhalations.

Your question 3 we make to be three questions and I will try to answer them separately.

A Work-up is the term we give to a series of dives leading up to a given depth, e.g. If we required a diver to dive to a depth of say 180 feet we gradually work him up (down) to this depth by giving him a series of dives each one deeper than the last until we feel confident of his ability at 180 feet.

A Wash-load, I do not know?

Asceptic bone-necrosis is a condition of the bones, caused as far as anyone knows by diving, and to put it in the simplest possible way is the result of a 'bend' in the bone.

Without a doubt the best place for the instruments you mention is on the wrist of the diver, unless they are too large.

Hoping that this goes some way to solving your problems.

Dear Sir,

We would be interested in receiving applications for employment from C.D's experienced in Deep Diving operations who are about to leave the service.

We are at present setting up deep diving systems capable of operation in depths in excess of 600 feet. Our present team is now complete but we intend to have up to three more systems available in 1970.

Yours faithfully,

A. BOND,

Director, Marine Division,

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Dear Sirs,

As I assume there are surely among your readers some who are interested in underwater technology, I shall appreciate it very much if you would be willing to publish the following in your magazine.

Preliminary Notice

On June 10th and 11th 1970 an International Symposium will be held on underwater technology in Den Helder, the Netherlands. The Symposium is organised by the Royal Naval College in co-operation with the Underwater Technology Department of the Royal Institution of Engineers in the Netherlands.

Those interested in obtaining further information on this subject in due time are requested to enter their names to the following address:

Symposium Committee
Koninklijk instituut voor de marine
Het Nieuwe Diep 8
Den Helder, the Netherlands.

Yours faithfully,
IR. J. A. J. BIEMOND
President of the Symposium Committee.

Dear Sir,

I have just received and read my first copy of the R.N. DIVING MAGAZINE. All the articles I liked very much and look forward to more of the same blend. The thing I approve of very much is that unlike a

popular American magazine it is not also a 'Girlie' picture publication (not that I have anything against 'Girlie' mags., but not necessarily mixed with diving). Just one small point though that I would like to raise, how about a glossary now and again to explain the meaning of so many service abbreviations? It was 23 years ago since I left *Vernon* and my service terminology since then has become very rusty.

May I just say before closing how much I enjoyed the hospitality of the P.O's Mess in *Vernon* during my days visit to the Diving Branch. Special thanks to Bill and Ted. Also I thought the 1969 Navy Days in Portsmouth Harbour very good generally and the Diving display in particular excellent.

Best of luck with the Magazine.

D. BRUCE-JONES, Ex.-R.N.B.E.M.
(Now Diving Supervisor, Trinmar Ltd., S. Trinidad)

P.S.:—Any R.N. diver finding himself in the South of Trinidad would be very welcome to a cool beer and a yarn by just telephoning me at my company's office.

Editor's Note:

The point about Service abbreviations valid! We will endeavour to add the meaning of any abbreviations (providing they are printable!) at the end of each article.

Congratulations

Congratulations to Lt.-Cdr. J. Gratton, O.B.E., Royal Navy, on being selected for promotion to Commander. Lt.-Cdr. Gratton has been Officer-in-Charge of both the Home Station and the Mediterranean Fleet Clearance Diving Teams and at the moment is the Commanding Officer of H.M.S. *Reclaim*, the deep diving trials ship.

Congratulations also to Lt.-Cdr. D. P. Selwood, Royal Navy, on being awarded the M.B.E. in the New Year Honours List. Lt.-Cdr. Selwood has until recently been the Officer-in-Charge, Western Fleet Clearance Diving Team and is now on loan service with the Royal Australian Navy.

From a Northern Paper

Who is Big Ginger ?

I hadn't a care in the world as me and my Maxi cruised north.

I was on my second thousand miles. There were surprises round every corner.

Shieldag was no exception. It's a wee row of houses nestling on the shores of Loch Torridon.

It looked as if the Martians had landed. At least that was my first impression of the Western Fleet diving team who were flapping about the road in black rubber diving suits.

They're the Royal Navy boys who salvage battle-

ships and go down to sort damaged hulls. They were there to practise deep dives of 250 feet.

I'd a notion to join them in a quick dip until "Big Ginger" told me about his last dive off the West Coast. He was on the sea bed when he stubbed his foot against what he thought was a black rock. It happened to be a shark. Ginger reached the surface faster than a Polaris missile !

These lads have worked from Barcelona to the Bahamas, but Loch Torridon gets their vote every time.



"You are never too old or too young to do this."

Lt. Terry Tomkins, R.N. (Retd.), (69½) and his Norwegian grandson Paul Moseng (12) keeping in date.



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The increasing importance of applied underwater research throughout the world has led to a growing requirement for a comprehensive source of reference to all published information on the subject.

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The Information Bulletin—launched in March—is complemented by the quarterly Underwater Science and Technology Journal. This provides an international forum for the exchange of original ideas on applied research, development and practice in the underwater environment.

For further details of these two new publications, or for sample copies, write to The Editor, Underwater Science and Technology, Iliffe House, 32 High Street, Guildford, Surrey, England.